

ABSTRACT OF THE DISCLOSURE

An adjustable nanopore is fabricated by placing the surfaces of two planar substrates in contact, wherein each substrate contains a hole having sharp corners and edges. A corner is brought into proximity with an edge to define a triangular aperture of variable area. Ionic current in a liquid solution and through the aperture is monitored as the area of the aperture is adjusted by moving one planar substrate with respect to the other along two directional axes and a rotational axis. Piezoelectric positioners can provide subnanometer repeatability in the adjustment process. The invention is useful for characterizing, cleaving, and capturing molecules, molecular complexes, and supramolecular complexes which pass through the nanopore, and provides an improvement over previous devices in which the hole size of nanopores fabricated by etching and/or redeposition is fixed after fabrication.